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### **Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-12 (canceled)

13. (Currently amended) An apparatus comprising:

a combustion chamber having means for introducing a fuel and oxidant into said combustion chamber and an exhaust conduit suitable for conveying products of combustion from said combustion chamber in fluid communication with said combustion chamber;

control means for controlling a flow of said fuel and oxidant into said combustion chamber;

a controlled sensor flame disposed in said exhaust conduit;

an optical sensor adapted to measure at least one narrow spectral band at least one of in and around said controlled sensor flame, said optical sensor having a signal output; ~~and~~

signal processing means for converting a signal generated by said optical sensor to a gas concentration of at least one of a gas and a vapor disposed in said products of combustion operably connected to said signal output; and

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a flame shape sensor adapted to determine at least one dimension of said controlled sensor flame operably connected to said signal processing means.

14. (Original) An apparatus in accordance with Claim 13, wherein said signal processing means is operably connected to said control means and controls said flow of fuel and oxidant into said combustion chamber based upon said signal generated by said optical sensor.

15. (Canceled)

16. (Original) An apparatus in accordance with Claim 13 further comprising temperature means for measuring a temperature of said products of combustion proximate said controlled sensor flame operably connected to said signal processing means.